REMARKS

Claims 1-32 are pending in the application. As will be discussed below, Claims 1, 6, 7, and 9 have been amended. No new matter has been added. Accordingly, entry of the present Amendment is requested.

The disclosure has been objected to at page 34, line 1, because of a minor informality. In response, page 34 has been amended to change "CLAIMS" to "We claim", as suggested by the Examiner. Accordingly, withdrawal of this objection is requested.

Claim 7 has been objected to under 37 C.F.R. § 1.75(c) as being in improper form.

In response, Applicants have amended Claim 7 as proposed by the Examiner to change "and" in line 2 to "or". Accordingly, withdrawal of the objection is requested.

Claims 1, 2, 6 and 9 have been rejected under 35 U.S.C. § 112, second paragraph, as assertively being indefinite.

In this rejection, three minor informalities are noted. In response, Applicants have amended Claims 1, 6 and 9 in accordance with the Examiner's suggestions. Accordingly, withdrawal of this rejection is requested.

Referring to page 4 of the Office Action, Claims 1, 2, 5, 6, 8 and 9 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,958,532 to Krause *et al.* Additionally, Claims 10 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Krause *et al.* alone and in view of an exert from the Condensed Chemical Dictionary.

Claims 3 and 4 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,030,290 to Ryan, and Claims 5 and 6 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,051,586 to Sabreen or Ryan.

Applicants respectfully traverse these rejections for the following reasons.

The present claimed invention is directed to the following:

(1) A surface-treating method of a fluorine resin, which comprises subjecting a fluorine resin to surface treatment so that an absorbance at 360 nm is 0.02/100 cm^2 or over when determined by iodometry;

(2) A surface-treating method of a fluorine resin, which comprises subjecting the surface of a fluorine resin to corona discharge treatment in a nitrogen gas atmosphere while controlling a concentration of an oxygen gas within a range of 4 to 150 ppm;

(3) A surface-treating method of a fluorine resin, which comprises subjecting a fluorine resin to corona discharge treatment on a surface thereof in air, and further to thermal treatment; and

(4) A method for making a laminate wherein a fluorine resin and a crosslinking elastic adhesive body are directly bonded together, the method comprising laminating the crosslinking elastic adhesive body to a fluorine resin surface, which has been treated to one of the methods (1) to (3) described above.

In accordance with the present invention, the surface-treated fluorine resin surface has acidic or reductive functional groups or radical-generating functional groups produced on the surface thereof. By the method (1), the surface of fluorine resin is analyzed by iodometry

detecting a peak of I_3^- at a wavelength of 360nm. When the surface-treated fluorine resin has an absorbance of at least 0.02/100 cm^2, it shows an excellent bonding property.

Moreover, fluorine resin and crosslinkable elastic adhesive strongly bonded together and having improved shelf stability is obtained by the method (2).

The surface treated fluorine resin obtained by the method (3) imparts an excellent bonding property with crosslinkable elastic adhesive.

The thus treated fluorine resin is firmly bonded with crosslinkable elastic adhesives such as ethylene-vinyl acetate copolymer, thereby producing a laminate having storage stability, a surface protecting property, stain resistance, high transparency and a sealing property. Examples 1 to 8 in the present specification fully demonstrate the advantages of the inventive methods and the properties of the laminates obtained.

Ryan discloses a method of treating a surface of perfluorocarbon resins to produce a cementable surface thereof. Ryan discusses that a corona discharge treatment is effected to modify the surface characteristics of the perfluorocarbon resin, and teaches that the treatment may be effected under any gaseous atmosphere such as air, oxygen, nitrogen, hydrogen, and ammonia.

However, Ryan fails to teach or suggest corona discharge treatment in a nitrogen gas atmosphere while controlling a concentration of an oxygen gas within a range of 4 to 150 ppm, let alone within a range of 4 to 50 ppm. Therefore, Applicants respectfully submit that the feature of the present claimed invention recited in Claims 3 and 4 is neither anticipated or rendered *prima facie* obvious by Ryan.

Sabreen discloses a method and apparatus for corona discharge treatment of discrete relatively isolated three-dimensional surface areas. It teaches that the corona treatment is effective to enhance wetting and bonding properties of the surface of articles.

However, Sabreen fails to disclose corona discharge treatment in air followed by thermal treatment, much less thermal treatment under conditions at a temperature of 80 to 300°C and for 5 to 60 minutes.

Therefore, Applicants respectfully submit that the feature of the present claimed invention recited in Claims 5 and 6 is not anticipated or rendered *prima facie* obvious by Sabreen.

Krause discloses a method of preparing a fluoropolymer composite tube or pipe comprising the steps of forming a fluoropolymer substrate and layering it with thermosetting or thermoplastic elastomer. Krause teaches that fluoropolymers such as ethylene-tetrafluoroethylene (ETFE) are extruded by a melt extrusion technique, on which thermosetting or thermoplastic elastomer material extruded and cured for crosslinking. It teaches surface treatment of fluoropolymer before integrating elastomer, especially by plasma discharge using gases such as air, oxygen, nitrogen, or other reactive gases, to insert functional groups including carbonyl, carboxyl, or hydroxyl groups, thereby increasing chemical bonding between the layers.

However, Krause does not disclose measurement of absorbance of a surface-treated fluoropolymer at all. It fails to teach or suggest a surface-treating method of fluorine resin, wherein surface-treated fluorine resin has absorbance of 0.02/100 cm^3 or over at a wavelength of 360nm when determined by iodometry, much less surface-treated fluorine resin having an

absorbance of 0.03/100 cm^2 or over, as recited in Claim 1 and dependent Claim 2 of the present application.

Although Krause discloses treatment in an autoclave or oven at a certain temperature (lines 59-65 in column 4 and Example 2), this is for curing of thermosetting or thermoplastic elastomer for crosslinking and adhesion of the layers, not for a treatment of the surface of fluoropolymer. Therefore Krause fails to disclose and teach corona discharge treatment in air followed by thermal treatment, as recited in Claims 5 and 6 of the present application.

Moreover, Krause also fails to disclose and teach corona discharge in an atmosphere of a nitrogen gas while controlling the concentration of an oxygen gas in the range of 4 to 150 ppm. Therefore, Applicants respectfully submit that it does not teach or suggest the feature of the present claimed invention recited in Claims 3 and 4.

Accordingly, Applicants respectfully submit that the cited references fail to disclose or suggest the presently claimed invention.

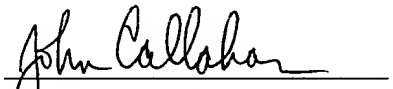
Furthermore, Krause fails to disclose and teach the use of ethylene-vinyl acetate copolymer. Krause uses amine curing agents such as triethylene tetramine along with the thermosetting materials (lines 59-65 in column 6), whereas the present invention does not use amine curing agents but uses organic peroxide for thermal curing and/or radical photopolymerization initiator for photopolymerization, together with ethylene-vinyl acetate copolymer. Thus, the laminate comprising fluorine resin and ethylene-vinyl acetate copolymer according to the present invention has excellent storage stability as well as bonding property.

In view of the foregoing, Applicants respectfully submit that the present claimed invention is not anticipated or rendered *prima facie* obvious by the cited prior art. Accordingly, withdrawal of the rejections is rejected.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: January 23, 2003

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 34, replace the first paragraph with the following:

~~CLAIMS:~~ We claim:

IN THE CLAIMS:

Claims 1, 6, 7 and 9 are amended as follows:

1. (Amended) A surface-treating method ~~of~~ for a fluorine resin, which comprising subjecting a fluorine resin to surface treatment so that an absorbance at 360 nm is 0.02/100 cm^2 or over when determined by iodometry.

6. (Amended) A surface-treating method of a fluorine resin according to Claim 5, wherein the thermal treatment is effected under conditions of 80 to 300°C ~~and~~ for 5 to 60 minutes.

7. (Amended) A surface-treating method of a fluorine resin according to any one of Claims 1, 3 ~~and~~ or 5, wherein the fluorine resin consists of an ethylene-tetrafluoroethylene copolymer.

9. (Amended) A method for making a laminate according to Claim 8, wherein after having been laminated with the fluorine resin, the crosslinking elastic adhesive body is crosslinked.